

**Before the
Federal Communication Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Amendment of Parts 2 and 95 of the)	RM-11271
Commission's Rules To Establish The)	
Medical Data Service at 401-402 and)	
405-406 MHz)	

REPLY COMMENTS OF INTEL CORPORATION

October 11, 2005

SUMMARY

The Commission has received a petition for rulemaking from Medtronic, Inc. to establish the Medical Data Service (“MEDS”) at the 401-402 MHz and 405-407 MHz bands of spectrum. The Intel Corporation (“Intel”) strongly recommends that the Commission expeditiously begin and conclude a rulemaking to create the proposed MEDS allocation.

The establishment of the MEDS allocation will enable a new ecosystem of consumer health care devices that can greatly improve the quality of life for many individuals struggling with monitoring and managing their health outside of a traditional clinical setting. For example, these devices could provide home or mobile monitoring of chronic diseases, cognitive decline disorders, post operative care, infant care, as well as many other general health monitoring applications. The existing bands of spectrum available for wireless sensors and actuators are not as well suited for health applications as the MEDS and therefore Intel recommends that the Commission rule create the proposed MEDS allocation.

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Intel Corporation ("Intel") hereby submits the following reply comments in response to the public notice released by the Federal Communications Commission ("Commission") in the above referenced proceeding.¹ Intel is the world's largest semiconductor manufacturer and is a leader in technical innovation. In addition to being a high volume manufacturer of microprocessors and communications semiconductors, Intel has recently formed a corporate division named the Digital Health Group which is focused specifically on technologies, devices, and services for the healthcare industry.

¹ *Commission invites statements opposing or supporting the petition for rulemaking to establish the medical data service band at 401-402 and 405-406 MHz*, Public Notice, FCC RM NO. 11271 (rel. Aug 25, 2005) Report Number 2725

Intel's Digital Health Group has reviewed, from several industry sources, a wide range of consumer health care use cases and device ideas, many of which include the use of wireless sensors. Wireless sensors could be deployed throughout a home or unobtrusively attached to an adult or infant to monitor vital signs, detect severe health traumas or events, and potentially activate life critical responses to conditions. For these reasons, Intel has concluded that the development of wireless health sensor technologies will provide great benefit to the many patients that require medical monitoring outside of the confines of a clinical setting.

Although there are other wireless technologies available that could be employed for these purposes, they do not have the same benefits that the proposed MEDS allocation could provide.

Consumer benefit: Because a MEDS radio could be light weight and low power , it would be ideally suited for body worn sensing devices where the required characteristics are unobtrusiveness, long battery life and high reliability:

- (1) The monitoring of vital signs such as blood pressure, temperature, heart rate, glucose level, in patients with chronic disease.
- (2) The real time measurement of respiration or temperature on an infant to monitor for Sudden Infant Death syndrome or basic fever indicators.

- (3) The monitoring of EKG or cardio telemetry data and vital signs such as blood pressure, temperature, and heart rate of post-operative patients at home or in a mobile setting.
- (4) Real time glucose monitoring and insulin pump control.

As several periodicals have reported in recent years, in many treatment situations it is far more beneficial for patients to recuperate outside of a hospital. Patients have a lower likelihood of being exposed to transmittable diseases and they generally recover more quickly in a family or familiar environment. Consequently, leading medical device manufacturers are developing telemedicine devices and peripherals for the monitoring of these patients at home and exploring the use of wireless technologies for unobtrusive sensing of vital signs. Such patients could greatly benefit from a reliable, low power, sensor market which would significantly benefit from the MEDS radio technology.

Other previously allocated medical spectrum bands are not suitable for these devices or use cases. The WMTS radio bands are strictly allocated for medical telemetry devices in a hospital or clinical setting and must be administered by healthcare professionals. The Medical Implant Communications Service (“MICS”) can only be used by implant devices and again must be administered by healthcare professionals. MEDS would be directly applicable to consumer medical sensing devices for monitoring outside of clinical environments.

Low interference spectrum: The proposed MEDS radio allocation would create a low interference that is necessary for “critical medical” wireless communications. This spectrum would only be shared with METAIDS or meteorological weather balloons and is relatively unencumbered with other interference sources. Because other short range radio alternatives operate in already crowded bands of spectrum, they can be susceptible to intermittent interference that greatly reduces their reliability and consequently their usefulness in life critical use cases. MEDS devices would not be competing with the large number of active consumer electronic devices in a home environment for a clear communication window and could be trusted to behave more predictably.

Good propagation through human tissue: The proposed MEDS radio allocation would occupy the 401-402 MHz and 405-406 MHz bands which have been shown to propagate well through human tissue. This characteristic is very desirable for sensors that are attached to the body. In particular, it would be valuable for an infant monitor used to detect respiration (SIDS) or core body temperature, because the infant could be curled up in his crib or otherwise in-between the sensor and the receiver.

Multiple radio vendors: There are already multiple device manufacturers producing Medical Implant Communications Service (“MICS”) radio components which are designed to operate in a manner very similar to the proposed MEDS radio and in an adjacent band of spectrum. Therefore, these

manufacturers could readily modify their designs to produce MEDS compliant products and facilitate the development of MEDS sensor devices. With multiple vendors producing MEDS radio products, a health ecosystem could grow and foster new innovation in the areas of power, battery life, and range.

For the reasons set forth above, Intel strongly recommends that the Commission expeditiously begin and conclude a rulemaking to create the proposed MEDS allocation.

Respectfully submitted,

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